

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-40. (Canceled)

41. (Currently amended) An isolated nucleic acid encoding a polypeptide comprising an alpha subunit of a KCNQ potassium channel, wherein said polypeptide forms, with at least one additional KCNQ alpha subunit, a KCNQ potassium channel having the characteristic of voltage-gating; and wherein said ~~nucleic acid specifically hybridizes under stringent conditions to a nucleic acid encoding polypeptide comprises~~ an amino acid sequence at least 90% identical to of SEQ ID NO:5, wherein the hybridization reaction is incubated at 42°C in a solution comprising 50% formamide, 5x SSC, and 1% SDS and washed at 65°C in a solution comprising 0.2x SSC and 0.1% SDS.

42. (Currently amended) The isolated nucleic acid of claim 41, wherein said ~~nucleic acid selectively hybridizes under stringent conditions to a nucleic acid encoding an amino acid sequence of SEQ ID NO:4, wherein the hybridization reaction is incubated at 42°C in a solution comprising 50% formamide, 5x SSC, and 1% SDS and washed at 65°C in a solution comprising 0.2x SSC and 0.1% SDS~~ polypeptide comprises an amino acid sequence at least 95% identical to SEQ ID NO:5.

43. (Currently amended) The isolated nucleic acid of claim 41, wherein said ~~nucleic acid encodes a protein having~~ polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO:4 and SEQ ID NO:5.

44. (Previously presented) The isolated nucleic acid of claim 41, wherein said nucleic acid has a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, and SEQ ID NO:3.

45. (Previously presented) The nucleic acid of claim 41, wherein the polypeptide encoded by the nucleic acid comprises an alpha subunit of a homomeric potassium channel.

46. (Previously presented) The nucleic acid of claim 41, wherein the polypeptide encoded by the nucleic acid comprises an alpha subunit of a heteromeric potassium channel.

47. (Previously presented) An expression vector comprising a nucleic acid of claim 41.

48. (Previously presented) A host cell transfected with the vector of claim 47.